TestStand II: Customization Course

Overview

Building on the TestStand I: Introduction course, the TestStand II: Customization course demonstrates how to customize the functionality built in to TestStand. Advanced features of the TestStand environment are taught such as using the TestStand application program interface (API) to dynamically manipulate the test environment, creating custom step types and templates to support test developers, creating and customizing process models and user interfaces, customizing report generation and database logging. This course also contains information on how to design test system frameworks.

Duration

Two (2) Days

Audience

- TestStand I: Introduction course attendees
- New TestStand users
- Users and technical managers evaluating TestStand in purchasing decisions
- TestStand users pursuing the Certified TestStand Developer certification

Prerequisites

- TestStand I: Introduction course or equivalent experience
- Knowledge of test executive software and familiarity with LabVIEW, LabWindows/CVI or C programming

NI Products Used During the Course

- TestStand Version 4.0
- LabVIEW Professional Development System Version 8.5
- LabWindows/CVI Version 8.0 or later

After attending this course, you will be able to:

- Use the TestStand API in designing your test system
- Configure TestStand applications to be used by different operators
- Develop customized TestStand applications
- Harness the power of testing multiple units under test
- Understand the different TestStand process models and how to modify them
- Customize report generation
- Develop and customize an Operator Interface

Registration

Register online at ni.com/training or
call (800)433-3488 Fax: (512)683-9300
info@ni.com

Outside North America, contact your local NI Office.
Worldwide Contact Info: ni.com/global

Part Number

910668-xx

-01 NI Corporate or Branch
-11Regional
-21 Onsite (at your facility)

TestStand II: Customization Course Outline

Test Frameworks

This lesson introduces the concept of the test framework, which is defined as the components of an automated test system that are not specific to a particular type of unit under test.

Topics include:

- Purpose of the test framework
- Components of a framework
- Framework requirements

TestStand API

This lesson describes the TestStand Application Programming Interface (API). You learn how the TestStand API is organized using an object-oriented architecture, how to call the TestStand API from TestStand, LabVIEW, and LabWindows/CVI, and how to use the TestStand API to manipulate the test environment.

Topics include:

- Introduction to the TestStand API
- TestStand API organization
- Calling the TestStand API
- Typical uses of the TestStand API

Custom Steps

This lesson introduces custom step types and compares them to step templates. You learn how custom step types influence the behavior of steps, such as modifying run-time behavior, modifying properties and results collection, creating dialog boxes to set step properties, modifying default step settings, and defining code templates. This lesson also describes using step templates to customize steps and when a step template is the appropriate choice for customization.

Topics include:

- Custom step types
- Step templates

Process Models

This lesson describes the process model, which controls how tests are configured and executed. You learn how to customize a process model to define configuration entry points, create custom execution entry points, include user prompts, modify data collection, and create custom reports.

Topics include:

- Process model structure
- Customizing a process model
- Common process model modifications

TestStand I: Introduction Course Outline

User Interfaces

This lesson describes the built-in TestStand user interfaces and how to use the TestStand User Interface Controls in LabVIEW and LabWindows/CVI to create custom user interfaces. This lesson also describes how user interface messages send asynchronous notifications between the process model and the user interface and the role of front-end callbacks in relation to user interfaces.
Topics include:

- Available user interfaces
- TestStand user interface controls
- User interface messages
- Front-end callbacks

Customizing Database Interaction

This lesson introduces the concepts of relational databases and using structured query language (SQL) to communicate with databases. You learn how to use SQL and Database step types to customize database logging in TestStand
Topics include:

- Relational databases
- Structured query language
- Customizing database interaction
- Modifying schemas
- Database step types

Design Considerations

This lesson reviews and expands on recommended design decisions for creating an effective test framework, including the appropriate locations to implement client sequences, process models, custom step types, and user interfaces. You also learn best practices for storing data, collecting results, handling errors, and deploying the test framework.
Topics include:

- Choosing where to implement functions
- Data management
- Error handling
- Framework deployment